PAPILLOMA OF THE LARYNX RECURRING AS AN EPITHELIOMA—REPORT OF A CASE.*

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The question of the possibility of the malignant degeneration of benign laryngeal growths, the frequency of this accident and the influence of operative procedure in promoting such transformation, has been so fully presented in laryngological literature during the past decade, that the subject might be regarded as entirely exhausted were it not for the fact that some of the most prominent representatives of our specialty still take such antagonistic positions on almost all the points at issue. We cannot expect that the ghost will be finally laid until a more harmonious state of affairs arises from the clash of conflicting opinions. At the present time we wish to submit a case of interest in this connection, with a few remarks as to the present status of the subject under consideration.

The subject as above indicated, naturally gives rise to three leading questions—the possibility of such transformation, its frequency and the effect of operative interference in bringing it about.

The first point, viz.: The possibility of the malignant degeneration of innocent neoplasms is so closely connected with the interminable question of the ætiology of carcinoma in general, that its discussion would not be in place on this occasion. Few laryngologists would be bold enough to absolutely deny this possibility; it may, however, be remarked that those who follow that insistant and industrious minority of pathologists, who look upon carcinoma as a specific infection, whether due to coccidia, blastomycetes, or what not, are obviously obliged to answer the question in the negative, and all cases of so-called transformation are explained by a super-infection or a mistaken diagnosis of the original growth.

If, on the other hand, with the majority of pathologists, we regard the origin of cancer as epitheliogenetic we can readily admit the possibility of a neoplasm originally benign taking on all the characteristics of malignancy, and as laryngologists, we are chiefly interested in determining in what proportion of cases this transformation takes place, and what effect operative interference has in bringing about this unfortunate accident. In our opinion, little light can be thrown upon these questions by theoretical deduction at the present time.

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They can only be decided by the collation of statistics based upon accurate and candid reports of such cases as come under our observation.

The case I wish to report is as follows:

Miss M. W., age 17, of German parentage, and the eldest of a family of ten children, all living.

Family history: negative as to carcinoma.

Personal history: had measles during childhood. In December, 1893, she had an attack of epidemic influenza, from which she soon recovered; but on trying to sing, she noticed her voice was husky. There was no cough nor dysphagia. The hoarseness continued to grow worse, and in February, 1894, she consulted a physician, who told her she had a growth on her vocal chord, which he treated by applications and sprays to the larynx, with little or no improvement.

In July of the same year, she consulted Dr. Day, of this city, who removed the growth, which was no larger than a pea, pale pink in color, and grew from the left vocal chord near the anterior commissure. The doctor states very positively that there was at this time no question in his mind as to the entirely benign character of the growth, and the microscopic examination made by a competent pathologist confirmed his diagnosis of papilloma. For a short time her voice improved only to again relapse into its former condition, growing gradually worse until November 6, 1895, when she consulted me.

An examination at this time showed the nose and the naso-pharynx to be comparatively normal. On laryngoscopic inspection, the ventricular bands were inflamed and swollen, the arytenoids freely movable. The anterior half of the left vocal cord was completely destroyed by ulceration. The ulcer presented a ragged, irregular, reddish appearance, and surrounding it was an infiltration of the submucous tissue immediately below the left vocal cord, and involving the entire left half of the larynx. The right cord was congested and swollen, leaving the chink of the glottis narrowed to one-third its normal size. The voice was entirely lost.

Excluding tuberculosis by physical and microscopical examinations, I gave the patient specific treatment in the hope that the ulcer might be syphilitic. Potassium iodide was rapidly increased to one drachm three times a day, while inunctions of mercurial ointment and pill proto-iodide were pushed to their full physiological effect. This treatment was supplemented by cleansing sprays and powdered iodoform to the larynx, and continued for two months, the patient growing worse all the while, the ulceration extending toward the left arytenoid, the infiltration and swelling increasing until the dyspnoea became so alarming that a tracheotomy was necessary.

On the advice of Dr. Delavan, of New York, to whom I described the case, the larynx was sprayed with absolute alcohol in the hope that the disease might be a simple papilloma. The result was disappointing, for at the end of two weeks I was obliged to discontinue the treatment on account of its irritating influence on the already inflamed larynx. This I regarded as confirmatory evidence in favor of malignancy, which I had all the while suspected. But on account of the growth being subcordial, and the chink of the glottis so narrow, it was impossible to remove a portion large enough for a microscopical examination.

On March 10, 1896 (one month after the tracheotomy), the following condition of the larynx existed: Fixation of the left, and very slight movement of the right arytenoid; inter-arytenoid space tumid and œdematous; ventricular bands obliterated by the infiltration and swelling from ulceration of the left vocal cord; the anterior two-thirds of the left vocal chord completely destroyed; the chink of the glottis in full inspiration probably reduced to one-fifth or less of its normal size, through which can be seen, on the left side of the larynx, numerous irregular, nodular masses of diseased tissue, bright red in color. No hæmorrhage until this date. The patient has paroxysmal attacks of coughing; considerable expectoration consisting of white frothy mucous, sometimes streaked with blood, and occasionally containing shreds of necrotic tissue. Some fetor of the breath; complains of tenderness over the larynx; sharp shooting pains in the left ear. She is pale, cachetic and losing in flesh, although her appetite is good and she sleeps well. There is no enlargement of the cervical glands.

I then had Dr. Daly see the patient with me for the second time. In discussing the case, he remarked: "The disease is unmistakably extending, and, judging from the appearance and clinical history of the case, I would consider the growth malignant."

The patient was sent to the Mercy Hospital for a thyrotomy, which was performed by Dr. Stewart and myself on March 14, 1896. On opening the larynx numerous nodular masses of new-formed tissue were found beneath the left vocal cord. These were removed by curved scissors and the entire left half of the larynx thoroughly curetted. The cartilages of the larynx were to all appearances healthy. The hæmorrhage was moderate and easily controlled. The wound was packed with iodoform gauze and dressed open for the first twenty-four hours, at the end of which time the gauze was removed and the edges approximated by adhesive plaster.

The operation and after-treatment were unattended with any inci-

dent worthy of note, and on the fifteenth day the patient was able to come to my office.

Portions of the growth were submitted to Dr. Eugene Wasdin, U. S. M. H. S., who kindly furnished me the following report:

"The specimen removed from the larynx, at the anterior attachment of the true vocal cords, gives, in frozen sections stained in hæmatoxylin and eosin, a newly formed connective tissue stroma supporting masses of epithelial cells, squamous in appearance. There is also an increased growth of the follicles common to this mucosa; many showing well-formed ciliated epithelium, others being lined with columnar cells markedly embryonal, or filled with such proliferated young cells. The connective tissue is quite vascular and there is small-celled infiltration. The presence of the flat or squamous cells in this locality, below the normal line of their distribution, gives rise to serious apprehension of the return of the growth; whilst the retrogression of the glandular epithelial cells into their embryonal condition, indicates that such return will prove the malignancy foreshadowed in this picture of mixed epithelial growth, adeno-epithelioma."

The disease soon showed evidence of return and a laryngectomy was decided upon and performed by Dr. Stewart at the Mercy Hospital, June 17, 1896, in the presence of some of the members of the American Laryngological Association, which was in session in Pittsburgh. At this time there was no recognizable lymphatic involment. In order to eradicate the diseased tissue it was found necessary to remove the entire larynx, with epiglottis and a portion of the anterior wall of the œsophagus. The trachea was stitched to the lower edge of the wound and a tracheotomy tube inserted. The wound was closed and on the third day an œsophageal tube was introduced through which the patient was nourished. The wound healed almost throughout by primary union and convalescence was uncomplicated. The disease first showed its return in the cicatrix about the 8th of August. This was soon followed by enlargement of the lingual and cervical glands. The patient died from exhaustion on October 25, more than four months after the laryngectomy.

The case related exhibits a number of unusual features, among them the rather uncommon location of the growth, and the very exceptional age of the patient. We will, however, pass over these points without comment, and proceed to briefly refer to the present status of the question of the malignant degeneration of benign tumors of the larynx, of which this seems to be an unusually well-authenticated example.

The possibility of tumors—clinically and histologically benign—undergoing a malignant transformation was pointed out by the older pathologists, and their dictum on this point has been either tacitly or explicitly accepted by succeeding authorities, notwithstanding the decided difficulty of obtaining absolute proof of such change in any given case. For various reasons, the question in its special bearing on laryngeal neoplasms has excited unusual interest, and perhaps a rather disproportionate amount of discussion. This is, to a certain extent, connected with the tendency among some laryngologists to construct a special and advanced pathology for the larynx, particularly as regards the etiology of intralaryngeal growths. Thus, irritation with resulting hyperæmia and cell proliferation has been assigned a far more prominent role in the causation of laryngeal tumors than it has been allowed by pathologists, when treating of tumors in general. This is not only true of benign growths, but of malignant tumors as well. This position is well illustrated by a quotation from Lennox Browne, who opens a discussion of the etiology of malignant tumors of the larynx with the following remark: ¹. "Promise of profit to be derived from a discussion of the probable causes of malignancy may at first appear as hopeless as the proverbial chastisement of a dead horse; but while this may be, to some extent, true, with regard to malignant neoplasms in general, an exception must be claimed for those in connection with the larynx."

A rather thorough investigation of the literature on the subject at my command, shows distinct change in the attitude of laryngologists toward this entire subject, and Lennox Browne's utterance on this pivotal point would have gained more support ten years ago than at the present time. In marked contrast to this opinion is that of a recent American author, who states: ². "The etiology of laryngeal cancer is as obscure as that of the disease in other parts." Some stress should be laid on this point since it bears a very vital relation to the question of degeneration of benign into malignant growths, especially following operations; for, granting that there are no sufficient reasons for believing that the etiology of cancer of the larynx differs from that of cancer elsewhere, we have an *a priori* consideration against the more frequent occurrence of malignant change in benign tumors here than in other organs. And further, we can, in view of the futility of the immense researches that the pathologists have undertaken in the past few years, afford to entirely ignore any theoretical speculations as to the pathogenesis of carcinoma of the larynx. It follows, therefore, that at present a solution of this question can only be hoped for through an appeal to statistics. Semon

recognized this fact, and in consequence has furnished us with the most solid and convincing contribution to the literature on this subject. His large number of cases so carefully analyzed, has wrought a decided revolution in our views on this question. Browne's original views as to the frequency of malignant degeneration of benign growths, are scarcely tenable to-day, and this distinguished author admits in the last edition of his work that "his experience may have been exceptionally unfortunate."

Gerhardt undoubtedly voices the consensus of opinion, when he states: ³. "F. Semon has proved that cancerous degeneration of originally benign tumors happens seldom and without anyone's fault."

Since Semon's collective investigation, little original material has accumulated, so that we simply append his totals: ⁴.

"No. of observers, 107 (covering 1862-1888).

" " benign tumors observed, 10,747.

" " papillomata, 4,190.

" " intra-laryngeal operations on benign tumors, 8,216.

" " intra-laryngeal operations on papillomata, 3,282.

" " papillomata recurring and requiring repeated removal, 480.

" " cases of spontaneous degeneration, 12.

" " cases of degeneration after intra-laryngeal operations, 31."

Semon, for reasons of varying weight, excludes fifteen of the thirty-one recorded cases of degeneration following operation. Even a few of the cases accepted might readily be objected to by the captious critic. These results, though approximate, are none the less positive, and undoubtedly the main conclusions reached are correct.

Semon himself has pointed out with great detail all sources of error. But, after all, the most formidable stumbling block lies in the difficulty of arriving at a positive diagnosis between carcinoma and papilloma in their earlier stages. Clinically, laryngologists have decided that this may be absolutely impossible. Our only resort then is the microscope. Unfortunately it has so often been found indecisive in the past, that some eminent men are beginning to express doubts as to the value of histological examinations in the diagnosis of laryngeal growths. Such cases as those of Lefferts and Semon, where several pathologists arrived at a different diagnosis in reporting on a specimen submitted for examination, admits of a possible explanation on the hypothesis that the growths under consideration exhibited a heterogeneous structure. Beschorner's experience recorded by Semon, where a tumor that had been pronounced malign-

nant by such eminent authority as Birch-Hirshfeld subsequently pursued a benign course, presents a more puzzling problem.

It may be remarked that the adoption of a more uniform and rigid system of nomenclature by pathologists and laryngologists would eliminate some confusing elements. Thus, the laryngologist scarcely recognizes the familiar papilloma under the designation, *pachydermia verrucosa*. On the other hand, we are surprised, in looking over the reports of older laryngologists (e. g. Fauvel), at the frequent mention of scirrhus and encephaloid, knowing that these forms of carcinoma are uncommon in the larynx.

Finally, ruling out sarcoma on account of its rarity in this location, the problem that usually confronts the pathologist, as far as the larynx is concerned, is the diagnosis between papilloma and squamous epithelioma. The chief source of error here lies in the fact that it may be impossible to differentiate histologically between a simple papilloma and the superficial layers of the malignant growth which so frequently are removed in the form of "papillary out-growths," thus often making the picture of the two neoplasms both macroscopically and microscopically identical, and the laryngologist must recognize the fact, that unless he includes the deeper layers in his specimen the microscopist's opinion is open to doubt and uncertainty.

Thanks to the researches of Semon and others, we are convinced of the rarity of malignant changes in originally benign growths, and, further, it has been established that intra-laryngeal operations have but slight, if any, effect in promoting this transformation. As yet, our present records but roughly approximate the truth, and in order to secure greater statistical accuracy we would urge a more careful clinical and microscopical study of our cases:

1. Burnett's Syst. Diseases of Nose and Throat, vol. 11, p. 767.
2. Delavan in Dennis' Syst. of Surgery, vol. 111, p. 56.
3. Nothnagel's Specille Pathol. und Ther.
4. Semon, *Internat. Centralblatt fuer Laryngol, etc.*, 1888-89. Park Building.

Mississippi Valley Medical Association.

The next meeting of the Mississippi Valley Medical Association will be held in Louisville on October 5, 6, 7 and 8, 1897.

All railroads will offer reduced rates.

The President, Dr. Thos. Hunt Stucky, and the Chairman of the Committee of Arrangements, Dr. H. Horace Grant, promise that the meeting will be the most successful in the history of the Association, and this promise is warranted by the well-known hospitality of Louisville and Kentucky doctors.

Titles of papers should be sent to the Secretary, Dr. H. W. Loeb, 3559 Olive street, St. Louis.